Remarks/Arguments

Applicant affirms the election of the Group II claims and has therefore canceled claims 1 to 13 and 25 to 30, being the non-elected groups I, III, and IV claims.

Applicant has added the feature of prior claim 17 to claim 14 thereby avoiding the Examiner's 112 objections.

Applicant has rewritten claim 18 in independent form and has added new claims 31 to 37. The features of new claims 31 to 33 and 35 are found at paragraphs 46 to 49 of the specification. New claims 34 and 36 repeat the features of prior claims 19 and 20 but are dependent upon a different base claim. The features of new claim 37 are found at paragraph 50 of the specification. It is therefore submitted that no new matter has been added by reason of these amendments.

This application has two independent claims: claims 14 and 18.

The Examiner rejected prior claims 14, 16, and 22-24 as anticipated by US2002/0090649 to Chan. By adding the feature of claim 17 to claim 14, it is submitted that this rejection has been avoided.

The Examiner rejected prior claims 14, 15 and 22 to 24 as obvious over US5,670,031 to Hintsche in view of Chan. With the addition of the feature of prior claim 17 to claim 14, claim 14 now requires at least one electrode covered with a coating doped with a ferrocene compound. Neither Hintsche nor Chan has this feature. Therefore, since the cited references lack a feature of amended claim 14, it is submitted that no *prima facie* case of obviousness may be made out against amended claim 14 based on these references.

The Examiner rejected prior claims 17 to 19 as obvious over either Hintsche or Chan in view of an article by Cui.

Chan discloses the possibility of attaching a capture binding ligand to an electrode, which ligand will bind to the target analyte (paras. 77 and 85). Chan mentions ferrocene as one possible ligand (para. 128).

Cui applies a bilayer lipid membrane doped with ferrocene to a gold electrode. The electrode is then immersed in different redox solutions, a range of positive and negative voltages applied to the electrode, and current measured. Cui shows that the current at a given voltage is dependent upon the redox solution. Cui notes that for one redox solution, with a formal potential higher than that of ferrocene, all of the ferrocene is oxidized to ferricenium. In consequence: "[w]hen the applied voltage is positive to the rest potential, the oxidative current is not observed because there is no ferrocene in the bilayer." However: "[w]hen the applied voltage is negative with respect to the rest potential, the reductive current had been observed, thereby providing the basis for a type of current rectification." (Page 246, col. 1.) Cui concludes that "[t]he ferrocene-modified BLM electrodes might be useful for constructing a bilayer-based electrochemical current rectifying device." (Page 247, col. 1.)

With respect to claim 17, now claim 14, the Examiner states "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the coated electrodes of Cui et al. for the electrodes of Chan et al. because electrodes with a ferrocene modified lipid bilayer membrane coating are useful in electrochemical devices for controlling current".

It is submitted that Cui shows that with a ferrocene modified lipid bilayer coated electrode, current will be dependent upon the redox solution in which the electrode is immersed. Therefore, contrary to the position of the Examiner, Cui does not show that a ferrocene modified lipid bilayer membrane coating can be used to selectively control current magnitude, but rather that the solution in

which it is placed will control the current.

Further, one skilled in the art would know that in electrochemical chips, the current varies with the solution admitted to the chip. Therefore, the skilled person would not be surprised that in Cui, with a ferrocene modified lipid bilayer coated electrode, current will be dependent upon the redox solution in which the electrode is immersed. And the skilled person would certainly not think, when presented with this teaching of Cui, that there would be any reason to use the electrode of Cui in an electrochemical chip.

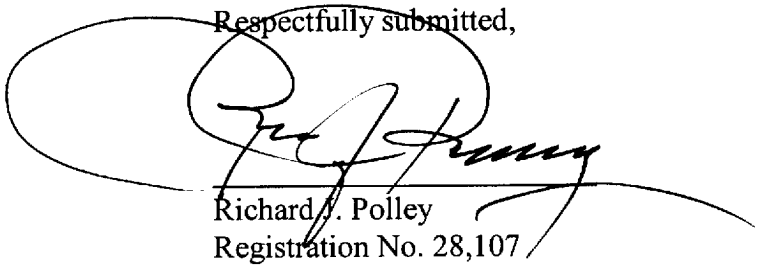
Yet further, Cui teaches that his electrodes may be useful in designing a current rectifier. Cui postulates no broader application, or other use, for his electrodes. It is therefore submitted that Cui teaches away from using his electrodes to improve SNR in an electrochemical sensor (which is the described purpose of the electrodes in the subject application: see para. 24). In other words, it is submitted that it would not be obvious to one skilled in the art to use Cui's electrodes in an electrochemical sensor.

Regarding claim 18, the Examiner states "Chan et al. do not disclose oxidizing the ferrocene compound. Cui et al. disclose oxidizing the ferrocene compound".

Cui discloses that the ferrocene may undergo a reversible oxidization process when the coated electrode is in use with certain redox solutions at certain applied voltages. In contrast, claim 18 recites oxidizing the ferrocene as one step in forming an electrochemical chip. Thus, the oxidization occurs before the chip is used as an electrochemical chip. If the teachings of Cui could be properly applied to Chan (the propriety of which combination is disputed, as set forth above), after Chan's chip was formed and in use, one might note that the ferrocene oxidized. But this is very different from oxidizing the ferrocene as a step in making the chip. Therefore, it is submitted that the references lack a feature of claim 18 and that in consequence no *prima facie* case of obviousness has been made out.

In view of the foregoing, early favourable consideration of this application is earnestly solicited.

Respectfully submitted,



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